

Blarina meridensis, sp. n.

Size comparatively large, skull-length greater than in any member of the subgenus *Cryptotis* except *B. magna*, Merr. Colour darker, more sooty and less brown than in *B. Thomasi*, Merr., the only other South-American species. Tail much longer than in that species. Internal cusps to unicusps indistinct, not definitely at the postero-internal angle of the tooth as in *B. Thomasi*. Back of large upper premolar not deeply excavated.

Dimensions of the type (measured in skin):—

Head and body 79 millim.; tail 37; hind foot, without claws 14, with claws 15·3.

Skull: greatest length, including incisors, 23·7; greatest breadth 11; tip of incisors to chief cusp of *p.*⁴ 5·2.

Hab. Merida, alt. 2165 m. Coll. S. Briceno.

Type: B. M. no. 98. 5. 15. 5.

Dr. Merriam has shown that the members of this genus, like as they are in colour and general appearance, can be readily divided into species by their size, proportions, and the shapes of their premolars. In these respects none of the species in Dr. Merriam's monograph at all agree with *B. meridensis*. Its only geographical ally, *B. Thomasi*, from Bogota, is readily distinguishable by its smaller size and shorter tail.

LXXI.—*Scorpions, Pedipalpi, and Spiders from the Solomon Islands.* By R. I. POCOCK, of the British Museum of Natural History.

[Plate XIX.]

PART of the material contained in the British Museum upon which this small contribution to the arachnology of the Solomon Islands is based was purchased from Mr. C. M. Woodford in 1887. A second instalment was procured by the officers of H.M.S. 'Penguin' (Commander A. J. Balfour commanding), and was presented to the Trustees in 1894 and 1895 by the Lords of the Admiralty.

In Thorell's tables of distribution of spiders occurring in the Austro-Malayan area (published in 1881 in vol. xvii. of the Ann. Mus. Genova) only one species of the order is recorded from the Solomon Islands. This is *Argiope bougainvilla* of Walckenaer. Walckenaer, however, mentions two more species, namely *Ctenus marginatus* and *Nephila vitiensis*, as doubtfully coming from this locality, and in the

last volume of 'Die Arachniden Australiens' Keyserling records three more. Consequently it will not, I think, be far wide of the truth to say that up to the present time only about half a dozen species of spiders have been recorded from this interesting archipelago. The material I have been able to examine has added considerably to the list, the number of known species now amounting to twenty-nine.

Concerning the affinities of the fauna, it need only be said that it closely resembles, so far as genera and also so far as species are concerned, that of Papua and the neighbouring islands of the Austro-Malayan seas.

The species marked with an asterisk are unknown to me.

Order SCORPIONES.

Genus HORMURUS, Thorell.

1. *Hormurus australasiæ* (Fabr.).

Hormurus australasiæ (Fabr.), Syst. Ent. p. 399 (1775); and all recent authors.

Loc. New Georgia (*H.M.S. 'Penguin'*), and probably Shortland Island (*C. M. Woodford*).

2. *Hormurus Karschii*, Keyserling.

Hormurus Karschii, Keyserling, Die Arachniden Australiens, 1885, p. 31.

Loc. New Georgia (*H.M.S. 'Penguin'*). The British Museum has also received from Mr. Simpson specimens of this species from the Solomon Islands. It is common in New Guinea.

Order PEDIPALPI.

Genus CHARON, Karsch.

1. *Charon Grayi*, Gervais.

Charon Grayi, Gervais, Ins. Apt. iii. p. 4 (1842).

Loc. New Georgia (*H.M.S. 'Penguin'*).

Previously recorded by Prof. Kraepelin from the Solomon Islands. A comparison between the specimens procured in New Georgia and the typical example from the Philippines leads me to think the synonymy of the species given by Prof. Kraepelin is probably correct (see *Abh. naturwiss. Ver. Hamburg*, xiii. p. 42, 1895).

Order ARANEÆ.

Family Ctenizidæ.

Genus CONOTHELE, Thorell.

1. *Conothele nigriceps*, sp. n. (Pl. XIX. fig. 1.)

♂.—*Colour*. Carapace and mandibles black; anterior legs and palpi blackish brown, with the tarsi yellow; tibia of palp, distal end of protarsus of first leg and protarsus of second yellow; third leg rather paler than the second, fourth paler than the third; sternum and coxæ quite pale yellow; lower side of abdomen pale grey, dorsal side dark ashy grey.

Carapace subcircular, rugose throughout, swollen and elevated between the fovea and ocular tubercle, area just behind the tubercle depressed; tubercle large, wider than long; anterior median eyes the largest, close together, anterior laterals close to the edge of the clypeus, anterior line procurved, posterior line almost straight; carapace longer than patella, tibia, and tarsus of palp, slightly longer than patella and tibia of fourth leg, equal to those of first, and just about equal to tibia, protarsus, and tarsus of third leg.

Mandible with fang-groove armed below with five inner teeth and ten outer; *labium* with a row of four spinules and a few more behind; *maxillæ* sparsely spinulose basally and below.

Palp slender, scarcely projecting beyond the tip of the patella of the first leg; tibia longer than patella, slightly narrowed distally, four times as long as wide, furnished with long hairs below; tarsus short, oval, a little longer than wide, bulb elliptical, spine slender, slightly curved, thicker at the base, filiform at the tip.

Legs slender, 4, 1, 2, 3; femur of first armed internally with an irregular series of short spines; patella also with an internal series and several spines below; tibia thickly spined below, especially externally; protarsus with a double external row and a single internal row beneath; tarsus spiny externally: tibia, protarsus, and tarsus of second leg spiny externally, patella with one external spine, tibia and protarsus with one internal spine, tarsus with one or two internal spines: patella of third leg spiny anteriorly, tibia spiny along its distal margin above; protarsus with about three superior distal spines and many setiform spines below, tibia with a few inferior setiform spines, tarsus with some spinules in front and behind: tibia of fourth leg with a few spinules in front and below, protarsus and tarsus with many spinules

below; tarsi of first and second legs scopulate: claws armed with one longer and one shorter tooth.

Measurements in millimetres.—Total length 10; length of carapace 5·8, width 5·5; length of palpus 8, of first leg 15, of second 13, of third 11, of fourth 16 †; patella and tibia of first leg 6, of fourth 5.

Loc. Probably Shortland Island. A single example collected by Mr. C. M. Woodford.

All the previously described species of this genus, which ranges westward from the Solomon Islands as far as Burma, are based upon female examples, with which males cannot be profitably compared.

Family Argiopidæ.

Genus NEPHILA, Leach.

2. *Nephila maculata* (Fabr.).

Nephila maculata (Fabricius), Ent. Syst. ii. p. 425 (1793); and all recent authors.

Specimens of the typical form from New Georgia (*H.M.S.* 'Penguin').

3. *Nephila maculata, Walckenaerii* (Dol.).

Epeira Walckenaerii (Dol.), Nat. Tijdschr. Nederland. Indië, xiii. p. 412 (1857); id. Acta Soc. Sci. Indo-Néerland. 1859, pl. i. fig. 4 (1859).

Nephila fuscipes, L. Koch, Die Arachn. Austral. i. p. 156, pl. xiii. fig. 1 (1871); Thorell, Ann. Mus. Genova, xvii. p. 146 (1881).

A single example of this subspecies procured by Mr. Woodford.

4. *Nephila imperialis* (Dol.).

Nephila imperialis (Dol.), Nat. Tijdschr. Nederland. Indië, xiii. p. 413 (1857); id. Acta Soc. Sci. Indo-Néerland. p. 23, pl. xii. fig. 2 (1859).

Loc. New Georgia (*H.M.S.* 'Penguin'). Specimen also procured by Mr. C. M. Woodford.

5. **Nephila vitiana* (Walck.).

Nephila vitiana (Walck.), Ins. Apt. iv. p. 471 (1847).

Recorded from the Solomon and Fiji Islands.

† In this and in all cases in this paper the legs are measured from the base of the femur, the coxa and trochanter being omitted.

Genus ARGIOPE, Aud. & Sav.

6. *Argiope picta*, L. Koch.

Argiope picta, L. Koch, Die Arachn. Austral. i. p. 33, pl. iii. fig. 3 (1871).

Argiope principalis, id. ibid. p. 207, pl. xviii. fig. 5.

A couple of examples collected by Mr. C. M. Woodford, probably in Shortland Island, belong to the form Dr. L. Koch described as *A. principalis*, a form which has been recorded from New Guinea, Fiji, Queensland, &c.

7. *Argiope leopardina*, sp. n. (Pl. XIX. figs. 2, 2 a.)

Colour. Carapace deep brown, with a yellowish border; palpi ferruginous, with black tarsi; legs uniformly blackish brown, not banded; coxæ blackish, sternum entirely clear yellow, maxillæ black, with yellow border; abdomen blackish brown above, spotted with yellow and marked in its anterior half with a large yellow patch, as broad as the abdomen in front, but narrowing posteriorly, and partially, or in some cases entirely, divided into two—a larger broad trapezoidal anterior patch and a smaller irregularly circular patch; the yellow spots smaller and larger, the larger ones traceable with more or less distinctness by their arrangement in transverse rows; sides of abdomen reddish above, black below; lower surface with the epigastric region black, with a broad median black band, interrupted in front by four or six white spots, extending along the middle line to the spinners; at its posterior end the band is defined on each side and narrowly behind by a triangular patch of an orange-yellow hue, which in front is in contact with the posterior end of a broad white stripe, three times or only twice as long as wide, with its posterior end produced into an external anguliform process; the stripe does not reach the epigastric fold in front, but ends internally in a short point just in front of the anterior white spot, while externally it is continued as a narrow white line forwards into a point on a level with a continuation of the epigastric fold.

Carapace a little shorter than tibia of fourth pair.

Abdomen oval, without shoulder-spikes.

Vulva as in *A. picta*.

Measurements in millimetres.—Total length 25; length of carapace 8.2, width 7.8; length of abdomen 17.5, width 11; length of first leg 46, of fourth 43.5.

Loc. Probably Shortland Island. Collected by C. M. Woodford.

This form apparently differs from *A. picta* and all its subspecies, i. e. *gorgonea*, *principalis*, and *faorensis* (see Thorell,

Ann. & Mag. N. Hist. Ser. 7. Vol. i.

Ann. Mus. Genova, xvii. pp. 64-65), at least in the pattern of the lower side of the abdomen. So far as the upperside is concerned, *leopardina* perhaps comes nearest to *fuorensis*, a form which is unknown to me.

8. **Argiope bougainvilla* (Walck.).

Argiope bougainvilla (Walck.), Ins. Apt. iv. p. 473 (1847).

Recorded by Walckenaer from Bougainville Island.

Perhaps allied to *A. pentagona*, L. Koch.

Genus CYRTOPHORA, Simon.

9. *Cyrtophora cylindroides* (Walck.).

Epeira cylindroides, Walck. Ins. Apt. ii. p. 136 (1837) (*teste* Simon).

Epeira viridipes, Doleschall, Act. Soc. Sci. Indo-Néerland. 1859, p. 29, pl. i. fig. 7.

Epeira nephilina, L. Koch, Die Arachniden Austral. i. p. 90, pl. vii. fig. 6 (1871).

Recorded from Cochin China, Amboina, Yule Island, Queensland, &c. A single specimen was obtained by Mr. C. M. Woodford in 1887, probably from Shortland Island; and specimens have also been received from New Georgia (*H.M.S. 'Penguin'*).

10. *Cyrtophora unicolor* (Dol.).

Cyrtophora unicolor (Dol.), Nat. Tijdschr. Nederland. Indië, xiii. p. 419 (1857); id. Act. Soc. Sci. Indo-Néerland. v. pl. ii. fig. 1 (1859).

A single immature female referable to this or to a closely allied species was obtained by Mr. C. M. Woodford, probably in Shortland Island.

Genus ARANEUS, Linn.

11. *Araneus nauticus*, L. Koch.

Araneus nauticus, L. Koch, Ægyptische und Abyssinische Arachniden, p. 17, pl. ii. fig. 2 (1875).

Loc. Probably Shortland Island (*C. M. Woodford*).

12. *Araneus relicinus*, Keyserling.

Nephila relicina, Keyserling, Die Arachniden Australiens, p. 217, pl. xix. fig. 6 (1887).

Colour. Carapace, mandibles, sternum, coxæ, and mouth-parts bright red; femora of legs the same red tint except the tips of the first and second, which are steel-blue-black; patella, tibia, protarsi, and tarsi of first and second legs steel-blue-black; third leg the same colour as the second, except that the tibia has the base paler; fourth leg red, with the patella, tarsus, apex of tibia, and both ends of protarsus steel-blue-

black; palpi red, with tarsus apically infusate; abdomen with a broad silvery-white anteriorly and posteriorly narrowed dorsal median longitudinal band, bordered with black; sides of abdomen yellow, silvery in front, ochre-brown behind, and marked with a silvery-white stripe; lower surface bounded on each side with a silvery-white stripe; the middle field testaceous brown in front, smoky black in the middle; area all round the spinners yellow, spinners black.

Carapace as long as tibia of fourth leg, longer than patella and tibia of third; impressed on each side behind the head, which is convex from side to side and from before backwards; ocular quadrangle a little wider in front than behind, situated on a low eminence; the eyes subequal in size; eyes of anterior line slightly procurved; lateral eyes on a low eminence, without superciliary tubercle.

Legs long and slender, first nearly five times as long as carapace.

Abdomen nearly twice as long as broad, as high as wide, rounded in front, gradually narrowed behind; its posterior extremity convexly rounded, and produced beyond and above the spinners into a broad rounded prominence.

Vulva. Scape piriform, short and small as compared with the subjacent sclerite, its apex not projecting beyond the posterior border of the latter.

Measurements in millimetres.—Total length 18; length of carapace 5.5, width 4.8; length of abdomen 12, width 6.5; length of first leg 27, of second 25, of third 15, of fourth 25.

Loc. Probably Shortland Island, a single adult female collected by Mr. C. M. Woodford.

13. *Araneus Woodfordi*, sp. n. (Pl. XIX. figs. 3, 3a.)

In shape and very largely in colour nearly allied to *A. relicinus*, but differing in that the upperside of the abdomen is occupied by a long, broad, black stripe, broad in front and behind, narrower in the middle, divided in front by a narrow, median, silvery-white stripe, and bordered on each side by a sharply defined silvery white stripe emphasized externally by a narrow black border line: the femora of the legs are in one specimen coloured as in *relicinus*, in another there is much more black; in both examples the fourth leg from patella to tarsus is of a uniform black.

Scape of *vulva* large and long, projecting some distance beyond the posterior edge of the inferior portion.

Measurements in millimetres.—Total length 15; length of carapace 5, of abdomen 10, of first leg 22, of fourth 22. (In the second specimen the legs are relatively longer.)

Loc. Probably Shortland Island (*C. M. Woodford*).

Though presenting a strong superficial resemblance, so far as regards the shape of the thorax and abdomen, to the species of the genus *Nephila*, the structure of the vulva in these species excludes them from the Nephilinae, and points to close relationship with the genus *Araneus* (*Epeira*).

Genus ARGYROEPEIRA, Emerton.

14. *Argyroepeira grata*, Guérin.

This widely distributed Austro-Malayan species has been recorded from the Solomon Islands by Keyserling as *Metacoccinea*, Doleschall (see 'Die Arachniden Australiens,' p. 208, 1887).

Genus PASILOBUS, Simon.

Pasilobus, Simon, Hist. Nat. Araignées, i. 1894, p. 881.

15. *Pasilobus mammatus*, sp. n. (Pl. XIX. fig. 4.)

Colour a nearly uniform blackish brown, abdominal tubercles paler; legs indistinctly annulate.

Carapace smooth above, irregularly granular at the sides, compressed on each side behind the head; width of head just about equal to length of tibia of first leg. *Abdomen* twice as wide as its median length; its anterior border mesially emarginate, the emargination furnished with six large tubercles, the edge outside the emargination directed obliquely outwards and backwards, and ending in a long tubercle directed forwards and outwards, near the base of which, but higher up and towards the middle line, are a pair of large tubercles; lateral margins short and parallel, tubercular; posterior margin widely convex, with four large tubercles in a transverse line in the middle; a pair of large tubercles in the centre of the dorsum; in addition to the tubercles mentioned, there are others of a smaller size scattered subsymmetrically on the dorsal surface.

Measurements in millimetres.—Total length 9; median length of abdomen 5.5, width of latter 11.

Loc. Probably Shortland Island (*C. M. Woodford*).

Differs from *P. bufoninus*, Sim., from the Moluccas, and from the Javan species *P. lunatus*, Sim., and *P. conohumeralis*, van Hasselt, in the tuberculation of the margins of the abdomen.

Genus ACTINACANTHA, Simon.

16. *Actinacantha scintillans*, Butler.

Actinacantha scintillans, Butler, Tr. Ent. Soc. 1873, pt. ii. p. 156, pl. iv. fig. 9.

A single example obtained by Mr. Woodford.

The locality of this species has been unknown up to the present time.

17. *Actinacantha metallica*, sp. n. (Pl. XIX. fig. 5.)

Colour. Carapace, mandibles, maxillæ, labium, and sternum black; legs of first, second, and third pairs, and palpi red or yellow, with black coxæ and infuscate tarsi and protarsi; legs of fourth pair black; upperside of abdomen pale yellow, with black sigilla; the basal prominences of the spines and the lower surface shining metallic blue or green; lower side not spotted; spines of the same metallic hue.

Form of abdomen and disposition of spines as in *A. pentagona*, Walck., but the spines longer, the length of the median spine exceeding the width of the head, and the posterior spine is about equal to the width of the head.

Measurements in millimetres.—Total length (excluding mandibles and posterior spines) 10; length of abdomen along middle line 7·2, including posterior spine 10, width behind base of anterior spine 9·3, from tip to tip of median spines 16; width of head 3·2; approximate length of median spine 4.

Loc. Probably Shortland Island (*C. M. Woodford*).

Resembling *A. scintillans* and *A. regalis*, Butler, the latter from the New Hebrides, in shape of body, disposition and approximately in length of spines, as also in the metallic tint and absence of spots from the lower side of the abdomen; but in the former two species the anterior three pairs of legs and the palpi are entirely black, not red as in *metallica*.

Genus GASTERACANTHA, Sund.

18. *Gasteracantha signifer*, sp. n. (Pl. XIX. fig. 6.)

Colour. Carapace, sternum, maxillæ, legs, palpi, and mandibles entirely black, polished; abdomen a rich yellow above, the sigilla black, a large black central patch usually involving the ten central sigilla, but sometimes not extending forwards to the anterior six sigilla; the lower surface black in the middle below and behind nearly up to the posterior spines, sometimes without spots, sometimes with two behind the mamillæ, and sometimes with a second pair at the sides of the tubercle; sides of the lower surface yellow, with a yellow stripe running inwards over the black towards the middle line.

Abdomen variable in shape, its length along the middle

line a little greater or less than or about equal to half the width between the spines, the difference depending upon the greater or less development of the lateral wings which support the lateral spines; the anterior border on level with the eight anterior sigilla widely convex, truncate mesially, posterior border immediately behind the posterior line of nine sigilla straight or slightly convex, with the convexity looking backwards; lateral wings nearly parallel-sided, the spines sometimes nearly following the direction of their respective borders, but always diverging, sometimes a little, sometimes considerably, the anterior looking forwards and outwards, the posterior backwards and outwards, the border between them less than the length of the posterior spine, and almost always greater than that of the anterior, straight or directed inwards and backwards; posterior lateral spine twice or more than twice the length of the anterior lateral; posterior spines longer or about as long as anterior lateral, separated at the base by a space equalling from two to three times their own length and equal to or a little less than the length of the posterior lateral spine.

Measurements in millimetres (of two specimens, A and B).—Total length of abdomen along middle line in A 7, in B 5; between lateral spines in A 12·5, in B 12; from tip to tip of lateral spines in A 16·5, in B 18.

Loc. New Georgia (*H.M.S.* 'Penguin': type). Specimens also procured by Mr. Woodford, probably in Shortland Island.

The structural variations in this species do not appear to be attributable to age nor to be correlated with geographical distribution, each one of the series of seven collected by Mr. Woodford being different from the rest; the same is true of the three collected in New Georgia.

There is little doubt that this species is identical with *G. mollusca* of Keyserling ('Die Arachniden Australiens,' 1886, p. 88, pl. vii. fig. 1); but it is to my mind quite distinct from the *G. mollusca* described and figured on p. 7, pl. i. fig. 4, of the same work sixteen years earlier. Keyserling, I think, confounded two species together when he described what is here named *G. signifer* as the adult of *G. mollusca*. At all events, none of the specimens of *signifer*, whether young or old, that I have seen agree with the figure and description of the original *G. mollusca*; and in Keyserling's collection of spiders, one of the specimens labelled by him *G. mollusca* is a representative of a form very like *G. signifer*, while the others are referable to a species closely allied to *G. Westringii*, Keyserling.

19. **Gasteracantha mollusca*, L. Koch.

Gasteracantha mollusca, L. Koch, Die Arachniden Australiens, i. p. 7, pl. i. fig. 4 (1871).

This species has been recorded by Keyserling from the Solomon Islands, but it does not appear from the reference whether the record applies to the genuine *G. mollusca* or to the form I have described as *G. signifer*; probably to the latter.

Family Pisauridæ.

Genus DOLOPÆUS, Thorell.

20. **Dolopæus (Thalassius) marginatus* (Walck.).

Ctenus marginatus, Walkenaer, Ins. Apt. iv. p. 402 (1847).

Recorded from the Solomon or Fiji Islands.

Genus DOLOMEDES, Latr.

21. *Dolomedes icadius*, L. Koch.

Dolomedes icadius, L. Koch, Die Arachniden Austral. ii. p. 859, pl. lxxiii. fig. 5.

A single adult female from New Georgia (*H.M.S. 'Penguin'*) agrees very closely with the description and figures of *D. icadius* recorded by Koch from several localities in Queensland.

22. *Dolomedes laticeps*, sp. n. (Pl. XIX. fig. 7.)

♂.—*Colour*. Carapace and legs mahogany-brown, carapace with wide lateral border of white hairs, the band extending from the edge over about one fourth of the upper surface, upper surface covered with whitish-brown hairs; a narrow white stripe in the middle line between the eyes; legs covered with a clothing of whitish hairs intermixed with longer bristles; abdomen whitish, darker above, with two blackish sinuous bands, defined by an external white line, in the anterior half of the upper surface and a sinuous darker stripe on each side behind.

Carapace nearly circular, only a little longer than wide, in length exceeding that of patella, tibia, and tarsus of palp, about equal to that of third tibia; *eyes* practically of relatively the same size and disposition as in *D. icadius*, the clypeus nearly twice the diameter of the anterior medians. Fang-groove of mandible armed with three teeth behind.

Palp short, reaching about as far as apex of first femur, its

tibia longer than its patella, about twice as long as broad, but shorter than the tarsus, armed at its distal end externally with a stout process; palpal organ as in figure (Pl. XIX. fig. 7).

Legs long and slender, 1 and 4, 2, 3, strongly spined; tibia of first and second with spines above.

Measurements in millimetres.—Total length 11·5; length of carapace 5, width 4·2; length of palp 6, of first leg 22, of second 21, of third 18, of fourth 22.

Loc. New Georgia (*H.M.S.* 'Penguin').

Apparently resembling *D. flaminus* and *D. facetus* of L. Koch in many structural features, but certainly differing from both in the form of its palpus. The greater width of the carapace as compared with its length forbids the view that the species is the male of the one I have identified as *D. icadius*, unless such a sexual difference is found to obtain in other species of the genus. In the female referred to *icadius* the length of the carapace is 7 and the width 5·5.

Family Heteropodidæ.

Genus PALYSTES, L. Koch.

23. *Palystes speciosus*, sp. n. (Pl. XIX. figs. 8, 8 a.)

♀.—*Colour*. Carapace clothed with yellowish-brown hairs, its integument reddish brown, blackish on the head-region; mandibles black, scantily clothed with greyish hairs, not striped; palpi and legs ochre-brown above; lower side of femora a rich brownish red; a fringe of fiery red or yellow hairs extending along the anterior and posterior sides of the protarsi above the greyish-black scopula, the fringe extending nearly halfway along the tibia of the first and second legs and also for a short distance on that of the third; coxæ ochre-brown, sternum deep brown, labium blackish, maxillæ same colour as sternum; abdomen parti-coloured, yellowish red above, with a median blackish longitudinal stripe narrowed posteriorly, laterally digitate, and joined in front with a transverse black band, which extends backwards on each side of the abdomen and expands into a broad, black, marginally badly-defined stripe reaching to the spinners; lower side of abdomen with a broad black stripe extending from the epigastric fold to the spinners and divided mesially by a fine red line, the area between the stripe and the lateral black area covered with hairs of a fiery red; epigastric area testaceous, bordered posteriorly with a red fringe; the area

on the upperside of the abdomen immediately behind the pedicle covered with yellowish-white hairs.

Carapace as long as tibia of second leg measured along its upperside, and as protarsus of fourth, slightly shorter than patella and tibia of third.

Legs: femur of first armed above with 3—2—3 spines; patella with 1 posterior spine; tibia with 3—3 spines below, 2 in front, 2 above, and 2 behind; protarsus with 2—2 below 2 in front, and 2 behind, all in the basal half: second leg armed like the first, but with one dorsal spine on tibia; third leg armed like the second, fourth leg like the second, but with only 1 distal spine on the posterior side of the femur.

Vulva consisting of an anterior transversely oval depression, followed behind by a somewhat quadrate plate consisting of two halves, which meet and form a sutural junction throughout the greater part of their length, and then diverge where the two sclerites dip into the epigastric fold.

♂.—The femora, coxæ, and tibiæ of the legs duller in colour beneath than in the female; the lower side of the abdomen covered with bright fiery yellow hairs, with no median black stripe.

Legs much longer (*cf.* measurements), carapace a little longer than the third tibia, a little shorter than the fourth tibia, about two thirds the length of the second; spine-armature of legs as in female.

Palpal organ (see figure, Pl. XIX. fig. 8 a); tibial spine slender and straightish.

Measurements in millimetres.—♀. Total length 32; length of carapace 14.2, width 11; length of first leg 54, of second 53, of third 38, of fourth 44; patella and tibia of first 21, of fourth 15.5.

♂.—Total length 27; length of carapace 14, width 11; length of first leg 75, of second 73, of third 50, of fourth 57; patella and tibia of first 38, of fourth 20.

Loc. Ugi and New Georgia (type), obtained by officers of H.M.S. 'Penguin'; specimens also collected by Mr. C. M. Woodford, probably in Shortland Island.

This species certainly differs from *P. ignicomus* of L. Koch ('Die Arachniden Australiens,' ii, p. 701) both in colouring and in the structure of the vulva and of the palpus. The type of *Palystes pinnotherus* of Walckenaer (Ins. Apt. i. p. 565), from Port Jackson, I have not seen; but the specimen which L. Koch identified by that name differs from *P. speciosus* at least in the form of the vulva (see L. Koch, 'Arachniden Australiens,' ii. p. 703, pl. lx. figs. 3-3 b). In Keyserling's collection there is an immature female, labelled *P. pinnotherus*, from Brisbane.

Genus HETEROPODA, Latr.

24. *Heteropoda venatoria*, Linn.

Loc. New Georgia (*H.M.S.* 'Penguin').

25. *Heteropoda* (? *Parhedrus*) *mecistopus*, sp. n.
(Pl. XIX. figs. 9, 9 a.)

Colour. Carapace mahogany-brown, with greyish-brown hairy clothing (mostly rubbed), black on the posterior slope, with a crescentic yellow band which extends laterally to the middle of the carapace; clypeus with faintly defined paler stripe; mandibles mahogany-brown, with blackish-grey hairy clothing, with indistinct paler bands; palpi and legs reddish brown, redder beneath, coxæ yellowish brown; sternum, maxillæ, and labium reddish brown; tibiæ and protarsi clothed above with silvery-grey hairs, intermixed with small dark spots; abdomen infuscate, with an anterior median dorsal line extending throughout half its length; lower side behind the epigastric fold with a broad, but not strongly defined, yellowish-brown band about one third longer than wide.

Carapace rather low, flat above, considerably longer than broad (12.5 : 11), cephalic grooves strongly defined, a little more than half the length of patella and tibia of fourth leg, less than half those of first, and just about equal to patella, tibia, and tarsus of palp. *Eyes* of posterior line a little recurved, medians a little smaller than laterals and a little closer together than either is to its lateral; ocular quadrangle longer than wide, narrowed in front, the four eyes subequal; anterior line of eyes procurved; lower edge of medians, which are a little smaller, on a level with the centre of the laterals; clypeus high, the lateral eyes nearly three times their diameter from the edge.

Mandibles weak, feebly geniculate; fang-groove armed below with 5 posterior teeth, 4 large and 1 small one between them.

Palp (as in Pl. XIX. figs. 9, 9 a); terminal portion of palpus long and slender. Legs very long, 2, 1, 4, 3; tarsi and protarsi normally scopulate; patellæ with anterior and posterior spines.

Measurements in millimetres.—Total length 24; length of carapace 12.5, width 11; length of first leg 71, of second 75, of third 62, of fourth 69; patella and tibia of first 26, of fourth 24.8.

Loc. Probably Shortland Island; a single male procured by Mr. Woodford.

In the height of the clypeus and shape of the carapace this species resembles the genus *Parhedrus*; but in the curvature of the anterior line of eyes it more nearly approaches *Heteropoda*.

Genus PRYCHIA, L. Koch.

26. *Prychia gracilis*, L. Koch.

Prychia gracilis, L. Koch, Die Arachniden Austral. ii. p. 654, pl. liii. fig. 1 (1875).

Two specimens of the genus *Prychia* obtained in New Georgia (*H.M.S. 'Penguin'*) are, I think, referable to the species named *gracilis* described by L. Koch from the Fiji Islands.

Family Attidæ.

Genus BAVIA, Simon.

27. *Bavia sex-punctata* (Dol.).

Salticus sex-punctatus (Doleschall), Nat. Tijdschr. Nederland. Indië, xiii. p. 24 (1857); id. Acta Soc. Sci. Indo-Néerland. 1859, pl. iv. fig. 8.

Marptusa sex-punctata, Thorell, Ann. Mus. Genova, xiii. p. 224, &c. (1878); id. op. cit. xvii. p. 441 (1881).

Acompse dulcinervis, L. Koch, Die Arachniden Austral. p. 1149, pl. c. fig. 1 (1879).

In this synonymy I follow Dr. Thorell, since a specimen of *Bavia* obtained by Mr. Woodford in the Solomon Islands, which appears to be identical with the species described by Koch as *Acompse dulcinervis*, also agrees seemingly with Thorell's description of *Marptusa sex-punctata*. Koch's specimens were from the Pelew Islands; those that Thorell examined from Amboina, Aru, Goram, New Guinea, &c.

Genus BATHIPPUS, Thorell.

28. *Bathippus* (?) *macroprotopus*, sp. n. (Pl. XIX. fig. 10.)

Colour. Carapace deep mahogany-brown, with metallic lustre at the sides, paler on the head and in the middle line of the thoracic portion, a few red hairs around the eyes; mandible mahogany-brown, with blue metallic lustre in front; legs and palpi a uniform ochre-yellow; abdomen duller yellow,

infusate on each side of the middle line above, and clothed above and at the sides with yellowish or reddish metallic hairs.

Carapace high; height from inferior edge up to lower border of posterior eye equal to length of ocular area; width about three quarters its length, length from clypeus to posterior border greater than length of tibia of second and third leg and than patella and tibia of fourth; ocular quadrangle a little wider in front than behind, its anterior width a little greater than its length. *Eyes* of middle line a little farther from anterior laterals than from posterior eyes, their lower edge in a straight line with that of the posterior eyes and with the upper border of the anterior laterals; the latter almost touching anterior medians; the lower rims a little higher than the centre of the medians, and the upper rims above the upper rims of the medians; clypeus less than length of radius of anterior medians.

Mandibles long, strong, and diverging; basal segment almost as long as carapace; posterior edge of fang-groove armed with about 12 longer and shorter teeth (differing in number and position on the right and left sides), and a large subquadrate tooth near the distal end; anterior border armed with a few small teeth near the base and a long strong spike about one fourth of the distance from the distal end; close to the joint of the fang there is also a blunt prominence and a small marginal spinule; *fang* long, strongly curved, with a triangular tooth on its lower edge just beyond the middle.

Maxillæ with convexly rounded external angle. *Palpi* long and slender, considerably longer than carapace; femur bowed; tibia one third longer than patella and nearly twice as long as tarsus, with the normal external distal spine; basal half of tarsus swollen, distal half cylindrical.

Legs 1, 3, 2, 4, long and slender, second reaching to middle of tibia of first; fourth just past end of tibia of third, first about twice as long as second; patella and tibia of third about equal to those of second, much greater than the fourth; coxa of first about twice as long as that of second; patellæ with anterior and posterior spine; protarsus and tarsus of fourth a little greater than patella and tibia of fourth.

Measurements in millimetres.—Total length 13; length of carapace 6, width 4.5; length of basal segment of mandible 5, fang 4; length of first leg 34, second leg 17, third leg 19, fourth leg 14, palp 8.

A single adult male obtained by Mr. C. M. Woodford, probably in Shortland Island.

This species appears to differ from all those from New

Guinea &c. ascribed by Thorell to the genus *Bathippus* in the exceptional length of the legs of the anterior pair.

EUSTIROGNATHUS, gen. nov.

Carapace almost as wide as long, head-region strongly elevated, its lightly convex upper surface meeting the posterior thoracic slope at an obtuse angle of about 135° ; sides of the thoracic portion about halfway above the lower edge distinctly depressed; ocular quadrangle longer than wide, longer than half the carapace, a little wider in front than behind. *Eyes* of second line about midway between those of the first and third; centres of anterior laterals on a level with upper rims of anterior medians; clypeus very narrow.

Mandibles (δ) of moderate length, diverging from the base, with strongly geniculate outer anterior edge, then converging and meeting, the inner or posterior extremity of the fang-groove being produced into a broad lobate process which meets that of the opposite side; the mandibles thus circumscribe a central piriform space, through which the rostrum and maxillæ may be seen; they are furnished in front and externally with a long smooth keel, running upwards from the base of fang, and below internally with a crest beset with stridulating-ridges; fang short.

Maxillæ much expanded distally, the antero-internal edge strongly convex, the external border of the distal portion strongly produced. *Labium* twice as long as wide.

Sternum subcircular.

Legs long and slender, 1, 3, 4, 2, third and fourth subequal, second only a trifle shorter; patella and tibia of third a little greater than those of fourth; protarsus and tarsus of fourth a little greater than tibia and patella of fourth; all segments of legs except tarsi spined.

Abdomen more than twice as long as broad.

According to Keyserling's tables of Australian Attidæ ('Die Arachniden,' ii. p. 1471 &c., 1883), this genus, neglecting the peculiarity of the mandibles, which may be sexual, falls alongside of *Iona*, Peckh. (*Erasmia*, Keys.), and *Prostheclina*; but, judging from the structure of the carapace, it has no near affinity with either. Tested by Mr. Peckham's tables (Tr. Wisconsin Acad. vi. p. 265, 1885), it also falls under the same heading as *Iona*.

29. *Eustirognathus oscitans*, sp. n.
(Pl. XIX. figs. 11-11 b.)

Colour. Carapace black, pale on the head, thoracic portion furnished on each side with a broad silvery band, the two

just meeting in the middle line behind; a silvery-white patch in the middle between the posterior eyes and one on each side below the eyes of the second line; red hairs in the space between the eyes of the anterior line. Abdomen pale in the middle, a broad black band stretching on each side to the spinners; sides pale, with silvery hairs; ventral surface pale, with a tuft of black hairs in front of the spinning-mamillæ. Second, third, and fourth legs pale yellow, with black spines, the tibiæ stained with deep brown, especially along their anterior and posterior sides; first leg deep ochre-yellow, with a heavy brown stripe running along the anterior and posterior margins. Mandibles, palpi, and mouth-parts deep ochre-yellow; tarsus of palp infuscate.

Carapace with its cephalic area nearly flat above and almost horizontal, its height considerably less than the length of the ocular area. *Eyes* of second row minute, nearer those of the third than of the first; antero-laterals standing by about half their diameter above the upper edges of the medians, their diameter equal to about the radius of the latter; clypeus low, about half the radius of the medians.

Fang-groove of mandible armed with 5 strong teeth in front and 5 or 6 equally strong teeth behind.

Palpus short, reaching about halfway along the femur of first leg, its femur arched; patella and tibia subequal; tarsus piriform elongate, as long as tibia and about half the patella; tarsal bulb with a median blunt-pointed process running backwards alongside the tibial spur.

Legs long and slender; those of first pair thicker than the rest, with a fringe of hairs along the underside of the femur, tibia, and protarsus, and a slighter fringe on the upperside of the femur; tibia armed below with 5-7 pairs of longish spines; protarsus with 3-4 pairs. Patellæ of first and second unspined, of third and fourth with or without a posterior spine.

Measurements in millimetres.—Total length 8; length of carapace 3.5, width 2.5; length of first leg 14.5, of second 10, of third 10.5, of fourth 11; patella and tibia of first leg 5.5, of second 4.8, of third 3.5, of fourth 3; protarsus and tarsus of fourth leg 4.

Loc. New Georgia (*H.M.S.* 'Penguin'). A single male example.

EXPLANATION OF PLATE XIX.

Fig. 1. *Conothele nigriceps*, sp. n. Distal segments of palp from external aspect.

Fig. 2. *Argiope leopardina*, sp. n. Dorsal surface of cephalothorax and abdomen.

Fig. 2 a. Ditto. Lower surface of abdomen.

- Fig. 3. *Araneus Woodfordi*, sp. n. Dorsal surface of cephalothorax and abdomen.
- Fig. 3 a. Ditto. Vulva.
- Fig. 4. *Pasilobus mammatus*, sp. n. Dorsal view.
- Fig. 5. *Actinacantha metallica*, sp. n. Dorsal view.
- Fig. 6. *Gasteracantha signifer*, sp. n. Dorsal view.
- Fig. 7. *Dolomedes laticeps*, sp. n. Right palpal organ from below.
- Fig. 8. *Palystes speciosus*, sp. n. Vulva.
- Fig. 8 a. Ditto. Right palpal organ from below.
- Figs. 9, 9 a. *Heteropoda (Parhedrus) mecistopus*, sp. n. Right palpal organ from below.
- Fig. 10. *Bathippus macroprotopus*, sp. n. Dorsal view.
- Fig. 11. *Eustirognathus oscitans*, gen. et sp. n. Anterior view of head and mandibles.
- Fig. 11 a. Ditto. Side view of carapace.
- Fig. 11 b. Ditto. Labium and maxillæ.

BIBLIOGRAPHICAL NOTICE.

Fossil Plants: for Students of Botany and Geology. By A. C. SEWARD, M.A., F.G.S., &c. Vol. I. With Frontispiece and 111 other Illustrations. Pages xviii and 452. 8vo. University Press, Cambridge. 1898.

THIS volume is one of the Biological series of the Cambridge Natural Science Manuals. The mutual bearings of Geology and Botany are well considered by the author in his preface, and clearly elucidated throughout his work. He intimates, with good reason, that both of these branches of science are rarely sufficiently well understood by one and the same naturalist; for a botanist will probably with ease get enough knowledge of geology, without working its deeper and more complicated problems, to be assured of its value in palæobotany; whilst, on the other hand, a geologist, taking up the subject intently, would require an intimate knowledge of the advanced and manifold researches of recent botany. In the third place, students having a general knowledge of natural science can find interest and instruction in such an earnest, clear, and comprehensive exposition of the principles and facts concerning petrified plants as this manual now before us.

The difficulty of clearing away the physical obscurities from fossil plant-remains, due to their imbedment, mineralization, and imperfections, doubtlessly delayed botanists from attempting to co-relate them with living forms to any great extent; and when they knew of the relative age and successional occurrence of these fossils, they could not feel sufficient interest to study their geological history in detail. Fossil-collectors, applying a limited knowledge of recent plants to the desired explanation of fossil leaves, fruits, and wood, made very slow advance; but they obtained some good results with careful use of the hand-lens. With the compound microscope, however, and the acquired art of making more or less transparent